IN THE UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA, ex rel, W.A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA, et al.

Plaintiffs,

vs.

TYSON FOODS, INC., et al.,

Defendants.

CASE NO. 05-CV-329-GKF-PJC

TRANSCRIPT OF PROCEEDINGS
JULY 28, 2009
BEFORE THE HONORABLE GREGORY K. FRIZZELL, DISTRICT JUDGE
MOTION HEARING, VOLUME I

APPEARANCES:

For the Plaintiffs:

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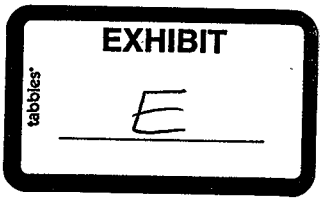

use routing equations or empirical data to do the instream -- the river instream analysis.

So it's not new analysis, it's not junk science. It's part of what the modeling community for watersheds typically does.

Dr. Storm did a TMDL analysis for this watershed in 2006. He testified and noted, and Dr. Engel talked with him about that, that he used a mechanistic aspect. So he used GLEAMS for runoff, which is part of SWAT. And then he used a mechanistic model which tries to simulate what's going on. And it wouldn't work; he couldn't get it to calibrate.

Dr. Engel knew that in 2006, reviewed the work and determined that the best and most reliable method to determine how phosphorus is traveling in the rivers and streams is to do empirical observations.

Your Honor, if you know exactly what's going on in the river or stream, you don't need to model it. You know exactly how the transport of the phosphorus is going on from the edge of field because we have empirical data.

So it's not unusual; in fact, it's standard to link GLEAMS with a routing or empirical model. Again, I've already mentioned that SWAT does this and so does HSPF. Dr. Engel points out many papers in paragraphs 10, 11 and 19 of his declaration and his original report on Appendix D, pages 20 through 21 and 39 describe this methodology as being reliable,

standard use in the watershed modeling business.

Dr. Engel -- actually, there's a Dr. Chauby, Your Honor, who used to be at the University of Arkansas, he's also a Ph.D. agricultural engineer who's done research at the University of Arkansas on this watershed in particular, and also does watershed modeling regularly.

During his deposition -- we've attached that as Exhibit E to our response in docket 2158 -- Dr. Chauby says linking GLEAMS with an empirical model -- routing model that was done -- as done by Dr. Engel is typical and reliable methodology.

So we have a nonretained expert who was deposed in this case who was asked specifically about Dr. Engel's methodology, and he validated it.

Now, Your Honor --

THE COURT: Mr. Page, we've been going here for a while, and although it is my intention here to go for a while longer, I think I need to take a break for everyone concerned here. Let's take a short recess. We'll go until about 12:30, then we'll recess for about an hour until 1:30, and then we'll go the rest of the afternoon.

(Whereupon a recess was had.)

THE COURT: Mr. Page.

MR. PAGE: During the break, my colleagues informed me that I'm not doing a very good job articulating the

application. And 59 percent was 2003 to 2006. The difference is, is in 2003, there was some major changes in wastewater treatment discharges in Tahlequah and Springdale, so that accounted for the differences.

THE COURT: But you say that was one of the purposes of the model. Mr. George says that these percentages are not the output of the model but, rather, were calculated by Dr. Ji-Hong outside of the model.

MR. PAGE: They weren't calculated by Dr. Ji-Hong outside of the model; they were calculated by Dr. Engel, who did all of the allocation analysis himself. Dr. Ji-Hong assisted him with that analysis.

Let me explain how allocation was done in this case and how it was done with the model. And, Your Honor, if I may point out to you that a question was asked of Dr. Storm in his deposition -- he's an OSU professor who's done modeling of this watershed, he's doing TMDL for the State of Oklahoma now on this watershed, he's an unretained witness. Exhibit F of docket 2158. In his deposition, he agreed with Dr. Engel's allocation process which I'll explain to the Court.

THE COURT: Page and line?

MR. PAGE: I'm sorry, Your Honor, I didn't put that in my notes.

THE COURT: Go ahead.

MR. PAGE: I can find it for the Court.

This is how allocation was done in this case with regard to wastewater treatment plants. We had actual data of discharges of phosphorus from wastewater treatment plants within the watershed for every wastewater treatment plant.

Dr. Engel assumed all wastewater treatment plant phosphorus is getting into the river and into the lake. So if anything, it's overstated how fast it's moving down into the river, but that's assumed. So we used actual phosphorus numbers from wastewater treatment plant.

So initially, then, that means you have to allocate the rest of the phosphorus that you're seeing at Lake Tenkiller back into non-point sources such as poultry and cattle.

For cattle, he did an analysis that was separate that recognized, along with other peer-reviewed articles in this watershed that I've already discussed with the Court, that cattle was primarily recycling phosphorus, primarily recycling phosphorus. So that he then evaluated cattle's contribution as simply a movement of the cattle closer to the streams.

Now, how do you then allocate the rest of the non-point source? What you do, Your Honor, is you know how much phosphorus is coming in from non-point sources because you subtract it from all the phosphorus you're observing in the model to -- with -- from the wastewater treatment plant contribution. That gives you your non-point source. You allocate cattle, and the balance is -- are the rest of the

sources. You turn off poultry. You turn off poultry inputs on the model, then you subtract the results for the model for poultry -- without poultry from the model run with poultry, and the difference gives you your poultry contribution. It's a rather simple equation that's done.

And Dr. Storm says that is how allocation is performed in watershed models. And Dr. Engel cites at -- in his declaration on paragraphs 12, 13 and 32 several peer-reviewed articles that use the same methodology of allocation as he employed in this case.

So that's the first important point on allocation.

THE COURT: If I'm correct now, we've referred now in this most recent declaration that I struck Friday paragraphs 10, 11, 12, 13, 19, 21, 26, 31, 32, 27 and 41? Any others that we want to refer to?

MR. PAGE: Your Honor, what I've done is I've made note of these paragraphs based on our telephone conference where you said you wanted to be able to identify in the record in my argument. I can go through here as we go through, but I'm trying to --

THE COURT: I'm trying to keep track here. Go ahead.

MR. PAGE: So, Your Honor, when Dr. Engel did his allocation, he used a methodology that was used by other modelers. Dr. Storm agrees with the methodology, and he provided peer-reviewed papers that show that that methodology

is appropriate.

The sources that the defendants claim are important are not important. For example, they claim that stream bank erosion wasn't considered by Dr. Engel. Dr. Engel explains that stream bank erosion simply represents other contributions to the soil or background, so you don't need to separately allocate that.

Second, septic tanks. Dr. Engel, in his report at Appendix D and G, points out that septic tanks are very minor sources. They're less than one percent, so they're not important to be considered separately in the model.

THE COURT: I haven't read that particular part of his deposition, but is that an overall calculation from proper septic laterals or is that specifically septics and a karst topography?

MR. PAGE: That's a septic tank evaluation that's based on reports from the IRW and these conditions when they looked at failures. There's been some -- I believe it's Conservation Commission and other reports that have talked about the amount of septic tanks that are in the watershed and then predicted the amount of failures.

So he evaluated septic tanks and determined that they weren't a significant contributor to phosphorus when you compare it to all the other contributions in the mass of contributions going in.

And Dr. Storm, in his deposition, Your Honor -- and, again, it's Exhibit F to our response -- agrees. He also does not, in his TMDL model, separately allocate to septic tanks because he says they're insignificant sources.

Another source that the defendants claim should have been --

THE COURT: Do you understand why septics would be an insignificant source in the IRW?

MR. PAGE: Number of people. You can look at -- 500,000 pounds of phosphorus on average is what's going into the -- into the Lake Tenkiller.

THE COURT: The testimony before me at the preliminary injunction hearing is that actually this area, at least at the time, was undergoing a boom in terms of housing.

MR. PAGE: Your Honor, the mass balance analysis that Dr. Engel performed as part of his analysis shows -- considers not just wastewater treatment plant and septic but considers all people's contribution to phosphorus into the watershed.

And the contribution is, if I recall, about 6 percent, 7 percent. The number of people -- that includes wastewater treatment plant, which is primarily where the urban areas are. If you look at the septic tank usage, it's a very small proportion of the population.

So you have that amount of the population of pounds of phosphorus from people, and then you look at the amount of

phosphorus that's in 350,000 pounds of poultry waste, and that's 9 million pounds a year.

THE COURT: Of phosphorus.

MR. PAGE: Of phosphorus. So when you look at the relative contributions of these different sources, as Dr. Engel and Dr. Storm at OSU have done, they determined that septic tanks are not an important source of phosphorus to the system.

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Another source that defendants rely on -- and they have a Dr. Jarman who provides this information -- was sewage bypasses. See, Dr. Engel's report only has to do with typical or normal wastewater treatment plant discharges, as are permitted and based on records. They said, well, what about sewage bypasses? That's an important source. Well, Dr. Jarman says the amount of phosphorus in a sewage bypass -- that is, if it rains a lot and is a big flood, then they can't handle the discharge, it overflows -- is a hundred pounds a year. That's their own expert's testimony.

Dr. Engel says -- when you consider about 500,000 pounds of phosphorus going into the lake each year, and that's not a disputed number, Your Honor, in this case, on average, 100 pounds from a sewage bypass is de minimis.

What about commercial fertilizer? Dr. Engel explained, and his model explains in Appendix D, that